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(54) Title: COMPOSITIONS AND METHODS FOR INHIBITING INWARD–RECTIFIER POTASSIUM CHANNELS

(57) Abstract

The present invention provides compounds and methods of identifying and designing compounds which inhibit activity of inward–rectifier K^+ channels. In particular, compounds having a tertiapin–like α helix, such as a stable tertiapin derivative wherein the methionine residue in position 13 of tertiapin is replaced by glutamine, are described. Methods of using these compounds to control insulin secretion, and cardiac rhythm and electrical conduction, to modulate neurotransmissions of neurons, and to induce diuresis in mammals are also provided.